



# Lemonweir Bottomland Hardwood Forest State Natural Area Interim Forest Management Plan

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## Property Identifiers

Property Name: **Lemonweir Bottomland Hardwood Forest State Natural Area**

Property Designation or Type: **State Natural Area**

DNR Property Code(s) (DNR Prop Code Number): **SNA #390**

Forestry Property Code: **2907**

Property Location - County: **Juneau County**

Property Acreage: **323 acres**

Property Manager: **Jon Robaidek**

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## Property Assessment

The following should be considered during the property assessment:

### A. Ecological Landscape description and property context

Lemonweir Bottomland Hardwood Forest State Natural Area (LBHF SNA) lies within the Central Sand Plains Ecological Landscape. This area is characterized by an extensive, nearly level expanse of lacustrine and outwash sand that originated from a huge Glacial Lake Wisconsin. Exposures of eroded sandstone bedrock remnants as buttes, mounds and pinnacles are unique to this Ecological Landscape. These types of geological features are not found elsewhere in the state and some of them support rare and specialized plants and animals.

Extensive oak and pine forests are common and can be managed at all scales and age classes. Good opportunities exist to develop and maintain old-growth characteristics for the mixed Central Sands Pine-Oak Forest as well as some of the drier oak and pine types at certain locations. Early successional forest management opportunities are also good here, for jack pine, "scrub" oak and, locally, aspen. Subsequently, integration of forest and barrens management is possible and highly desirable in some areas because of the type, suitability, and condition of the habitats present, the extensive acreage of public lands, and the relatively low levels of development. Use of prescribed fire as a management tool may be more feasible at large scales here than elsewhere in southern WI, and is appropriate for many forest, savanna, grassland, and wetland communities. The spread of invasive plants threatens natural communities and other habitats and is a growing management concern.

Rare communities such as Oak and Pine Barrens, Coastal Plain Marsh, White Pine-Red Maple Swamp, are well-represented in the Central Sand Plains and support many rare species. Remnant barrens warrant additional recognition, protection, restoration and expansion, and in many areas could be managed compatibly with dry forests of jack pine and oak. East of the



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Wisconsin River extensive "surrogate grasslands" are managed for rare and declining grassland animals, including Wisconsin's best populations of the Greater Prairie-chicken and regal fritillary. In general, there are numerous opportunities to connect high-quality remnants of barrens, dry forest, sand prairie and other habitats and manage at multiple scales.

Abundant wetlands provide excellent large-scale management opportunities, especially in and around the bed of the former Glacial Lake Wisconsin. Large acid peatland complexes support many species (plants and animals) known mostly from northern Wisconsin, along with species that are rare in the north. These wetlands can be managed in ways that are compatible with surrounding forest and/or open habitats, to maximize their utility for sensitive species.

The Central Sand Plains is a major concentration area, of rare species, including several that are globally imperiled. A number of disjunct species, sometimes far from their primary ranges, are present. In addition, the landscape's location and its wide variety of habitats allow many plants and animals to occur near their southern or northern range limits.

**Hydrology:** Large areas of wetlands and a number of generally low-gradient streams that range from small cold-water streams to large warm-water rivers. Natural lakes are rare and are limited to riverine floodplains and a few scattered ponds within the bed of extinct Glacial Lake Wisconsin. The hydrology of this Ecological Landscape has been greatly disrupted by past drainage, channelization, impoundment construction, and groundwater withdrawal.

**Current Land Cover:** The southern portion of the Central Sand Plains, in which LBHF SNA lies, is a mosaic of marginal cropland, and woodlands of pine, oak, and aspen. West of the Wisconsin River you find a short growing season and summer frosts which limit agriculture in the area.

## B. General property description

Located at the confluence of the Wisconsin and Lower Lemonweir Rivers, LBHF SNA is an expanse of floodplain forest. The extensive forest is maturing and developing old-growth structure attributes such as large trees, standing snags, tip-ups and downed coarse woody debris. The understory is diverse with an assemblage of native grasses and sedges. The northwest part of the property is a sandy upland composed of planted prairie and a red pine plantation. Soils are mainly Mixed sandy alluvium that is frequently flooded, with the limited uplands composed of both fine loamy sand and fine sandy loam. Privately owned land to the west is in a conservation easement and is planted to native grasses and forbs.

## C. Current forest types, size classes and successional stages

### Forest Types

The majority of the property is comprised of bottomland hardwood stands (about 136 acres) whose ephemeral hydrology limits the extent of traditional forest management and access for its implementation. According to the DNR Silviculture and Forest Aesthetics Handbook, "When the bottomland hardwood community is found further north, it can be regionally significant and may provide important habitat for uncommon or rare species" (47-1). The most common tree species of commercial value across these sites include eastern cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), river birch (*Betula nigra*), swamp white oak (*Quercus bicolor*), and silver maple (*Acer saccharinum*). Hackberry (*Celtis occidentals*), bur oak (*Quercus macrocarpa*), black willow (*Salix nigra*), basswood (*Tilia americana*), black ash (*Fraxinus nigra*), red maple (*Acer rubrum*), and red oak (*Quercus rubra*) are other common species across this landscape.



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A small, previously farmed portion of the property, roughly 15 acres in size, was planted to red pine (*Pinus resinosa*) in the early 1980s; in the next five years (2018-2022), the red pine will be completely rotated and the area converted to prairie ecosystem into perpetuity.

## **Size Classes**

2012 stand reconnaissance data shows two distinct size classes, one in the hardwood pole size class representing the primary forest type and one in the large sawlog size class representing the secondary forest type.

## **Successional Stages**

Most of the property currently in bottomland hardwood cover is in its young forest succession stages with a mean stand diameter of 7 inches at breast height; in the next 20-30 years or so, stands will be approaching mature forest conditions. A small percentage of these stands is already in its mature to climax forest stages. Large amounts of coarse woody debris can be found in the understory in these mature to climax areas and provides cover and foraging areas for a host of area herptile and mammal wildlife.

Upland areas within the site currently in prairie or grassland cover types are in the juvenile pre-shrub and -tree stages of succession and will be maintained this way by prescribed fire and other associated disturbance methods

## **D. NHI: Endangered, threatened, Special Concern species, Species of Greatest Conservation Need (SGCN)**

The property and the area immediately adjacent have two threatened bird species and one threatened plant species. Two special concern bird species are also found in the area with four special concern plants and one special concern beetle. Six natural communities are noted in the area. Eagles are found nesting along both the Lemonweir and Wisconsin River and are a possibility on the property. SGCN species potentially found in the Wildlife Action Plan floodplain community total seven birds, four herptiles, five mammals, 1 aquatic insect and 1 terrestrial insect.

## **E. Wildlife Action Plan Conservation Opportunity Areas (COA),**

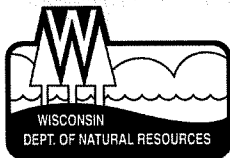
The Lemonweir River Conservation Opportunity Area partially is located in the southern part of the property. It is of State significance for "Diverse Aquatic Communities". It is the importance of the river corridor including the river floodplain as it merges with the Wisconsin River immediately south of the property.

## **F. Significant cultural or archeological features**

No archeological sites have been identified on the Lemonweir Bottomland Hardwood Forest State Natural Area. However, they are numerous in the area. Should potential sites become known in the future, consultation shall occur between property management and/or forestry staff and the Department Archaeologist.

## **G. Invasive species**

- Prickly Ash is found throughout the pine plantation and encroaching on the native grass areas found in the northwest.
- Red cedar is also encroaching on the uplands.
- There are pockets of other invasives which will be managed to slow expansion and possibly eliminate the population.



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## H. Existing State Natural Areas (SNA) designations

The entire property is designated a State Natural Area managing the site as a floodplain forest reserve, an aquatic reserve and an ecological reference area. Natural processes will determine the structure of the floodplain forest.

## I. Primary public uses (recreation)

The area is accessed for the traditional recreation opportunities found on many state owned properties, including hunting, fishing, trapping, hiking etc...

## J. Biotic Inventory Status

No biotic inventory is completed for this location.

## K. Deferral/consultation area designations

Consultations should take place for any management planned for the bottomland forest.

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## IFMP components

**Management Objectives:** Maintenance rather than conversion of this forest cover type is the primary forest management objective for the bottomland hardwood stands of LBHF SNA. Group selection harvest methods are typically implemented in these stands, but site sensitivity due to numerous rare-threatened-endangered species and close proximity to ephemeral riverways of the Wisconsin River, management will be largely passive in a preservation style. Gaps created by natural self-thinning and self-mortality of current overstory species and advanced seedling regeneration in these created gaps is relied upon to regenerate these bottomland hardwood stands.

The 35-year-old red pine plantation at the property's northwestern extremity is the management anomaly within LBHF SNA. This pine stand, through complete stand rotation, is to be converted to a true grasses cover type and maintained as a grassland/prairie ecosystem into perpetuity. Beyond this instance of active management, no further timber harvests are planned for this state natural area in the near future.

**Property Prescriptions:** To date, no active management prescriptions have been planned, aside from the complete rotation of the 15-acre pine plantation and its subsequent prescribed burn to maintain the area as a grassland/prairie ecosystem. Passive management based upon biological rotation age of current overstory species is the only silvicultural strategy in place for LBHF SNA at this time.

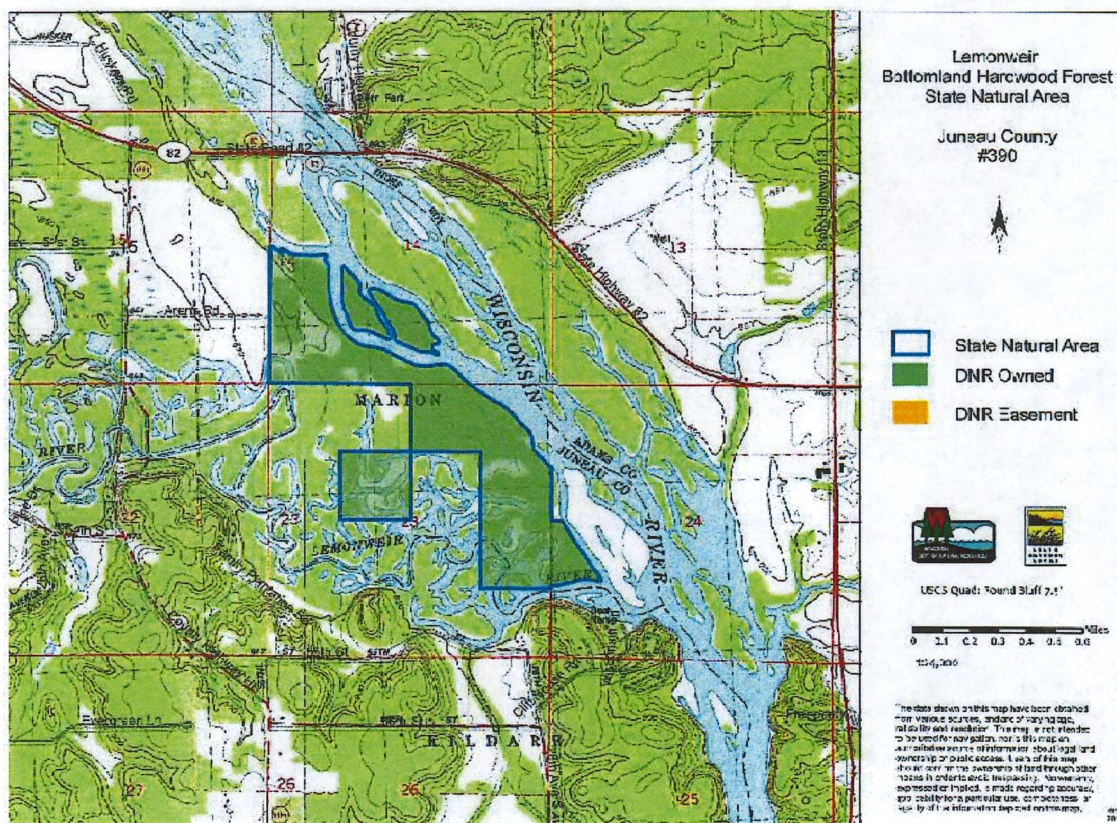
Summary of Public Involvement and Comments Received



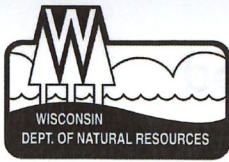
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## Maps

### a. Property Boundary and ownership Map

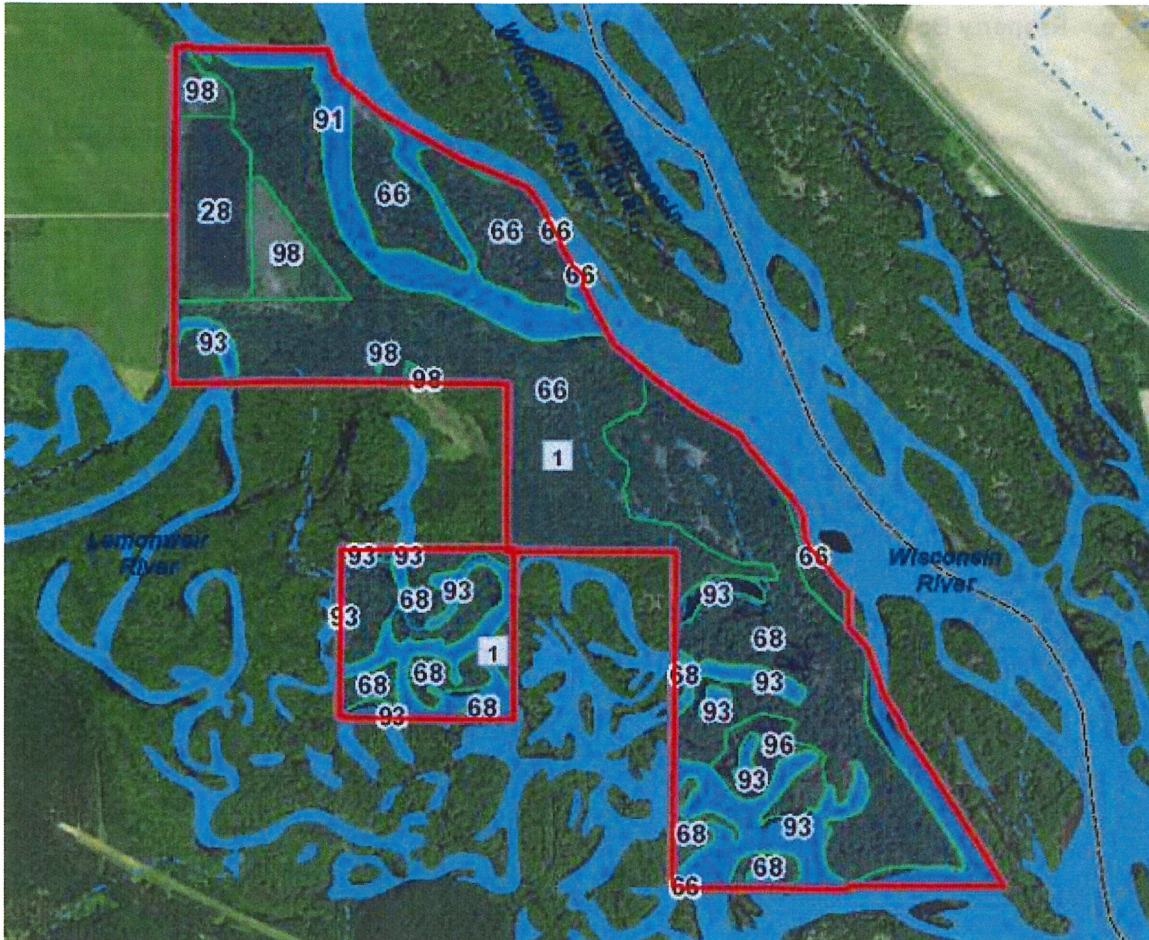






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## b. Forest Cover Type Maps



### *Stand Type by Number*

28: Red Pine Plantation  
66, 68: Bottomland Hardwoods  
91, 93: Open Water  
98: True Grasses



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PREPARED BY:

Jon Robaidek

9/24/18

Property Manager

Date

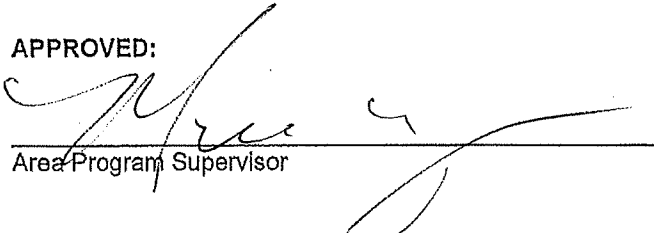
Kristina Kusel

9/24/18

Assisting DNR Forester

Date

APPROVED:

  
Area Program Supervisor

11/6/18  
Date

REVIEWED BY:

  
Forester

10/30/18  
Date

  
District Ecologist

10-30-18  
Date